EXECUTIVE SUMMARY

The San Antonio International Airport Master Plan Study was a two-phase strategic planning process. The first phase of the Study produced a series of possible demand scenarios for growth of San Antonio and its air transportation. Various options to expand capacity were explored for each set of demand scenarios, ranging from a "do nothing" approach to expansion of the existing Airport, or the development of a new air carrier airport. Phase 2 of the Study refined the selected alternative, presented a hypothetical implementation schedule and financial analysis, identifying demand-based triggers for initiating action. By linking development to demand, the Study guides the Aviation Department in responding to actual growth, despite the uncertainties of the aviation market.

The Study was conducted by a team of consultants that included airport planners, engineers, airport financial planners, surveyors, public information advisors, and environmental scientists. The team was led by Ricondo & Associates, Inc. and included the following consultants:

- Flores & Company
- KJS Advertising and Public Relations
- Don McCrary Associates, Inc.
- Raba-Kistner Consultants, Inc.
- Robert Aguirre Consultants, L.C.
- Simpson Group
- William Broadwater

Public and stakeholders participation was an integral part of the process. Three committees were formed at the beginning of the Study to review progress and provide input to the Study team. These were:

- Community and Business Advisory Committee, which included representatives from neighborhood associations, Chambers of Commerce, businesses, schools, and other groups. Committee membership numbered over 100.
- Technical Committee, which included airport tenants, airlines, Federal Aviation Administration (FAA), Texas Department of Transportation Aviation and Highway divisions, VIA Metropolitan Transit Authority (VIA), the Metropolitan Planning Organization (MPO), and others.
- Management Committee, which included members of the Aviation Department Senior Staff and chairs of the other committees.

The Airport Advisory Committee also received regular briefings and submitted recommendations to the City Council.

1. Background

In 1991, the FAA formed a Capacity Design Team to identify and evaluate alternatives to enhance existing Airport and airspace capacity at San Antonio International Airport. Their final document, the *San Antonio International Airport, Airport Capacity Enhancement Plan*, included a recommendation to update the Airport's existing Master Plan. In 1993, the City of San Antonio retained a team of consultants led by Ricondo & Associates, Inc. to prepare this Master Plan update.

The Study was composed of two phases. The first phase projected a range of aviation activity which might be expected to occur over the 20-year planning horizon (i.e., through 2015) and assessed the impacts of such activity on existing facilities. Alternative development options to provide needed capacity were identified and assessed, and a preferred series of options was recommended for City Council approval. Phase 2 of the Study refined the selected alternative to create a detailed development plan, designed for implementation in logical, incremental steps. Work included the implementation plan, which outlined programs for monitoring and assessing timing of development based on need; an overview of environmental impacts associated with pursuing the recommended plan; and a financial analysis which evaluated the financial feasibility of implementation and identified sources of funding for the work. The Airport Plans Package, required by the FAA to document recommendations of the Study, was also included in Phase 2.

Concurrent with the Master Plan Study, a Limited Terminal Area Airspace Study was performed. The Airspace Study evaluated the operational impacts of the Master Plan recommendations given future demand levels and the relationship between San Antonio International, Stinson Field, Kelly Air Force Base (AFB), and Randolph AFB. Elements of the Airspace Study were used to refine the recommended development plan.

In late 1994, the Defense Base Closure and Realignment Commission (BRAC) began deliberations on the 1995 round of military base realignments and closings. Due to concerns about the impact of base closures on the Master Plan Study, the City Council suspended work on the Master Plan until BRAC actions were finalized. In June 1995, BRAC recommended closing the Air Logistics Center at Kelly AFB and realigning the remainder of the base to neighboring Lackland AFB. A citizens' committee, the Initial Base Adjustment Strategy Committee (IBASC) was formed by the Mayor of San Antonio to develop a vision for the redevelopment of Kelly AFB. The IBASC presented its report in December 1995. Work began again on the Master Plan Study in early 1996, with incorporation of the redevelopment goals for Kelly AFB.

2. Aviation Outlook for San Antonio International Airport

Forecasts of aviation activity are the basis for determining future aviation facility needs of the Airport. The size of the terminals, number of runways, parking needs, and other improvements are based on the future number of passengers and aircraft operations anticipated to be served at the Airport in the future. However, with the volatility of the aviation industry and the uncertainties of future aviation growth characteristics and trends, a series of demand scenarios were defined to protect future activity growth under various conditions. Five different demand scenarios or growth patterns were analyzed:

- **Baseline Scenario** represents a continuation of historic growth patterns and socio-economic trends.

- **Conservative Growth Scenario** represents slower growth in origin/destination traffic than historical trends. This scenario is reflective of the loss of a major employer or economic generator, loss of air travelers to other transportation modes, or other events.

- **International Growth Scenario** represents greater growth in international activity than has been experienced. This scenario could result from impacts of NAFTA, under which business/community ties between the San Antonio area and Mexico or other international markets would grow significantly, fueling growth in international air passenger traffic.

- **Accelerated Growth Scenario** depicts the impact of higher growth in the San Antonio area economy, resulting in greater domestic traffic volumes than under Baseline Scenario. Under this scenario, the Airport remains primarily an origin/destination airport.

- **Hubbing Scenario** models the results of a single domestic carrier establishing a hub operation at San Antonio. Activity is characterized by high levels of connecting passengers, and aircraft schedules with defined arrival and departure periods/banks. Based on San Antonio's location, the hub would serve primarily domestic/international transfers.

Volume and character of activity were projected for each of the scenarios at the end of the 20 year planning horizon. The five scenarios cover a wide range of activity levels and characteristics, and have significantly diverse facility requirements over the 20-year planning horizon.

3. Consideration of Alternatives

Traditional master planning demand/capacity analyses were performed to determine specific requirements needed to support each demand scenario. Areas of analysis included airfield, terminal complex, curbfront, parking, support facilities, roadways, general aviation facilities and air cargo facilities. Typically the Hubbing Demand Scenario created the greatest demand for terminal and airside facilities, and therefore, that scenario was used to assess maximum requirements.

Alternatives to accommodate airfield requirements were considered first. Alternatives considered included on-site development options both within the existing Airport boundaries and beyond, and off-site development at a new location. In all, 17 options for development of the existing airfield were considered. As a comparison to on-site development, two conceptual plans were presented for development of a new airport and various potential sites examined, including Randolph AFB and Kelly AFB. Each alternative was assessed for operational efficiency and capacity; physical impacts to existing and proposed development around the Airport; cost of development; and environmental considerations. Proposed alignments of the Loop 410/Hwy 281 interchange and Wurzbach Parkway were considered in the assessment. The alternatives were refined to a series of three on-site development actions which could be constructed incrementally, as demand dictates, to accommodate anticipated future activity over the planning horizon.

Upon determination of the airfield configuration, a similar analysis was conducted to select an optimal terminal layout. Nineteen alternatives were assessed for operational efficiency, passenger convenience, environmental considerations, flexibility to provide incremental expansion capability, physical requirements, and development cost. Concepts were presented to the Master Plan Committees and to the airlines technical representatives for comments and endorsement. The recommended concept provides the best mix of characteristics to serve existing and future demands. It allows a logical development phasing for expansion required to serve the ultimate airfield configuration and flexibility, with respect to concourse spacing, for operational considerations.

Redevelopment goals for Kelly AFB were considered when assessing the alternatives for San Antonio International Airport. Plans for Kelly AFB include an aerospace industrial complex, warehouse area, logistics/distribution center, and office/business support areas. This type of development is complementary to the aviation activity anticipated at San Antonio International Airport. It will allow the Airport to expand service to passengers and general aviation, while Kelly provides additional opportunities for aviation-related industrial and business development. Since the Air Force will retain ownership of the runway, neither scheduled passenger traffic nor a significant amount of general aviation traffic are planned at Kelly.

4. Recommended Development Plan

No capacity problems exist in the airfield or terminal today. While the existing airfield and terminal can handle anticipated aircraft and passenger growth for at least the next five years, minimal development may be required to meet aviation demands over the next 20 years. The recommended development plan represents improvements required to serve the Baseline Demand Scenario through the year 2015. Use of this scenario ensures a moderately conservative approach to growth.

Recognizing that actual activity may differ from that of the Baseline Scenario, the plan is designed to be flexible enough to allow incremental expansion beyond that necessary to serve demand projected under the Baseline Demand Scenario and up to the requirements associated with the Hubbing Demand Scenario, or conversely, to be only partially implemented, as demand dictates. Therefore, the Study identifies two levels of development. Future Development is that which is required to meet the needs of the Baseline Scenario through the year 2015. Ultimate Development requirements represent additional development of the existing Airport to satisfy demands beyond 2015, if growth materializes as projected under the Baseline Scenario, or if growth occurs at a faster rate or in a different manner from the Baseline Scenario, such as it would under the Hubbing Demand Scenario. If expansion of the existing Airport were not deemed beneficial, the City of San Antonio may elect to identify a new site and relocate the Airport rather than implement the Ultimate Development elements. Prior to undertaking any of the development projects, additional studies will be conducted to verify the need for and timing of development, and to further refine project details.

Elements of the recommended plan for Future Development under the Baseline Demand Scenario include:

- **Airfield:** Construction of new exit taxiways, extension and reconstruction of the general aviation Runway 12L-30R to a length of 8,250 ft. by 150 ft. wide, to handle air carrier traffic; and a 1,500 ft. extension of Runway 3-21, to allow arrivals on Runway 21 independent of operations on Runway 12L-30R (land and hold short operations).

- **Terminal:** Addition of Concourse B to Terminal 1, and replacement of Terminal 2, for a total of 29 aircraft gates. The entire terminal complex will be served by a two-level curbfront similar to that at Terminal 1, and improved access roads. Terminal curbfront and parking alternatives were closely coordinated with the Parking and Roadway Improvements Project that was under design at the time of the Study.

- **Parking and Access:** Public parking will be added within the terminal roadway loop over the planning horizon to handle demand under the Baseline Scenario. As parking demand grows, a series of three garages can be built within the terminal loop to increase parking by 2,560 spaces.

- **General Aviation:** Development of general aviation tenant facilities will occur on the north side of the airfield, to handle growth anticipated under the Baseline Demand Scenario and relocation of existing tenants displaced by terminal expansion.

- **Air Cargo:** Facilities will be developed along Wetmore Road, north of the East Cargo complex. The area has adequate room to handle growth anticipated under the Baseline Demand Scenario with area for additional expansion.

Ultimate Development shown in the Study includes:

- **Airfield:** Development of a new parallel Runway 12/30, spaced at approximately 3,400 ft. from existing Runway 12R/30L. This development includes land acquisition and rerouting Salado Creek to accommodate the runway, and does not conflict with the proposed Wurzbach Parkway alignment. Addition of this widely-spaced parallel runway will allow simultaneous independent arrivals, increasing airfield capacity substantially beyond that required under the Hubbing Scenario in 2015.

- **Terminal:** By the addition of concourses to the new Terminal 2, the terminal complex can be expanded to 60 gates, if needed. The terminal curbfront roadway can be extended to the full length of the terminal frontage.

The Study considered rail access to serve the Airport. VIA and the MPO are planning for a regional rail line along the existing alignment of the Missouri Pacific Railroad, east of Wetmore Road. The line is initially planned to run from downtown San Antonio to Loop 1604, with expansion to New Braunfels and San Marcos. A station is planned at Wetmore Road and Loop 410, just east of the Airport. Planning efforts are in the early stages, and no schedules have been set for project development. Future studies should address passenger movement from the station into the Airport.

5. Timing of Development

The implementation plan illustrates a logical development sequence to transition the Airport from its existing state to the recommended development plan. However, it is likely that the actual rate and character of growth over the planning horizon will differ from that projected under the Baseline Demand Scenario. Timing for implementation of individual projects should be based on actual demand. Therefore, the Study links development projects to various demand-related triggers for implementation. It also outlines a program for monitoring growth to assess actual demand. Through regular monitoring and analysis of available statistics and an understanding of growth trends, the City of San Antonio can respond in a strategic manner to meet actual demand, planning for and developing facilities when needed.

It is anticipated that no expansion will be required in the first five years of the planning horizon. In the five to twenty year period, the existing Airport can be developed to meet the needs of the Baseline Demand Scenario through 2015. Beyond that demand level, either implementation of projects identified as part of the Ultimate Development or relocation of the Airport to a new site will be required.

Implementation of airfield improvements is linked to average annual aircraft delay. The Study defines four minutes of delay per aircraft operation as the point at which planning for additional airfield capacity should begin. By initiating planning at this point, additional capacity would be expected to come on-line at roughly the point that delays reach six to ten minutes. In the current aviation market, this is typically the threshold

at which the cost of providing additional capacity weighs favorably against the operating costs associated with aircraft delays. Under the Baseline Demand Scenario, the four minute delay threshold is not anticipated to occur until late in the planning period. Since demand levels and delay are functions of the volume, schedule, and character of the traffic, the delay threshold may be reached earlier or later than anticipated if conditions vary from the Baseline Demand Scenario.

Terminal development will be initiated either by tenant needs for expansion, by the need of the Aviation Department to replace functionally obsolete facilities, or by a combination of both. The implementation plan presents several options for logical development of the terminal complex based on combinations of gate needs and facility conditions. The schedule presented in the implementation plan and used by the financial analysis illustrates a worst-case scenario in which facility condition would require replacement of existing Terminal 2 as part of the terminal complex redevelopment. Because of this, the implementation schedule assumes that terminal construction would occur in the period from 2003 to 2010. However, actual timing and phasing of implementation will be determined by specific requirements at the time of development. The analysis demonstrates that the recommended terminal layout provides the flexibility needed to address various phasing options, and that the Airport has the resources to implement the program as early as 2003, if needed.

Parking improvements should be implemented when existing parking facilities are at 90% of capacity on a busy day of the peak month. Therefore, planning initiation thresholds were set at 80% capacity. The current parking expansion project will accommodate parking needs through 2004, based on passenger projections of the Baseline Demand Scenario. New garage development is likely to occur between 2004 and 2010. By monitoring parking activity on a regular basis, the Aviation Department can maintain adequate on-airport public parking supply.

General aviation and air cargo tenant areas will be developed as activity grows and tenants identify needs for additional facilities. A portion of the existing general aviation facilities which will be displaced due to terminal construction will need to be replaced in conjunction with that development.

It is likely that the rate and character of growth will differ from the Baseline Demand Scenario as time progresses, and the timing or need for implementation will change from that which is illustrated in the Study. To help the City of San Antonio and Aviation Department remain flexible to respond to actual conditions, the Study describes a monitoring program by which development indicators can be tracked. By monitoring trends and understanding the nature of the activity, the Airport can make strategic planning decisions to delay or accelerate implementation of various projects to meet actual demand. Other checks and balances to keep implementation on track are also included.

6. Environmental Considerations

An environmental overview of the recommended development plan was performed to identify potential environmental impacts which may be encountered when implementation occurs. It compared conditions for 21 specific impact categories with and without the recommended development, as prescribed by the FAA. Airfield and terminal projects will require separate environmental assessments or impact studies to be performed no more than five years before implementation. The overview gives advanced warning of potential impacts that should be considered in the later environmental studies, and in conceptual planning for the projects.

Aircraft noise is a concern of most neighborhoods surrounding the Airport. While noise impacted areas are anticipated to increase as aircraft activity increases at the Airport, implementation of the runway extensions creates only a small increase in the 65 DNL noise exposure contour that defines the noise impacted area. Phaseout of noisier Stage 2 aircraft by the year 2000 helps minimize the impacted area.

Air quality impacts were assessed using the FAA's Emission Dispersion Modeling System (EDMS). Elements that have significant impacts on air quality include automobile and aircraft traffic volumes, aircraft fleet mix, vehicle idle time, and aircraft queue time. The analysis indicates that implementation of the development program will not have a significant impact on air quality, primarily due to relief of aircraft delay and vehicle congestion within the Airport.

Future Development is anticipated to have no significant impacts on either floodplains or wetlands in Salado Creek. Ultimate Development, however, may have significant impacts on both. Storm water runoff will be increased and water quality impacts may be created. These, along with the short-term construction impacts, should be assessed in detail in future studies.

7. Financial Viability of Development

The financial analysis assessed the financial viability of implementing the recommended development plan, based on the hypothetical implementation schedule and the activity anticipated under the Baseline Demand Scenario. The analysis overlaid the costs associated with recommended development onto the Airport's ongoing financial plan to model the impacts of implementing the projects over the planning period. Where additional funds were required for development, the analysis identified sources and calculated debt service associated with the funds. Revenues and expenses were adjusted from year to year to reflect implementation of various facilities. Metrics used to assess viability include terminal rental rates and costs per enplaned passenger.

The estimated cost of the development program totals approximately $446 million dollars, including $241 million for airfield improvements, $147 million for terminal development, and $58 million for parking expansion through 2015. Detailed cost estimates for each construction project were prepared based on

current bid prices for similar work. These expenditures may be financed through bond issues, FAA Airport Improvement Program Entitlement and Discretionary funds, collection of Passenger Facility Charges (PFCs) and the Airport's Capital Improvement Fund. Based on the hypothetical implementation schedule, collection of PFC revenues would begin in 2007 and continue through 2015.

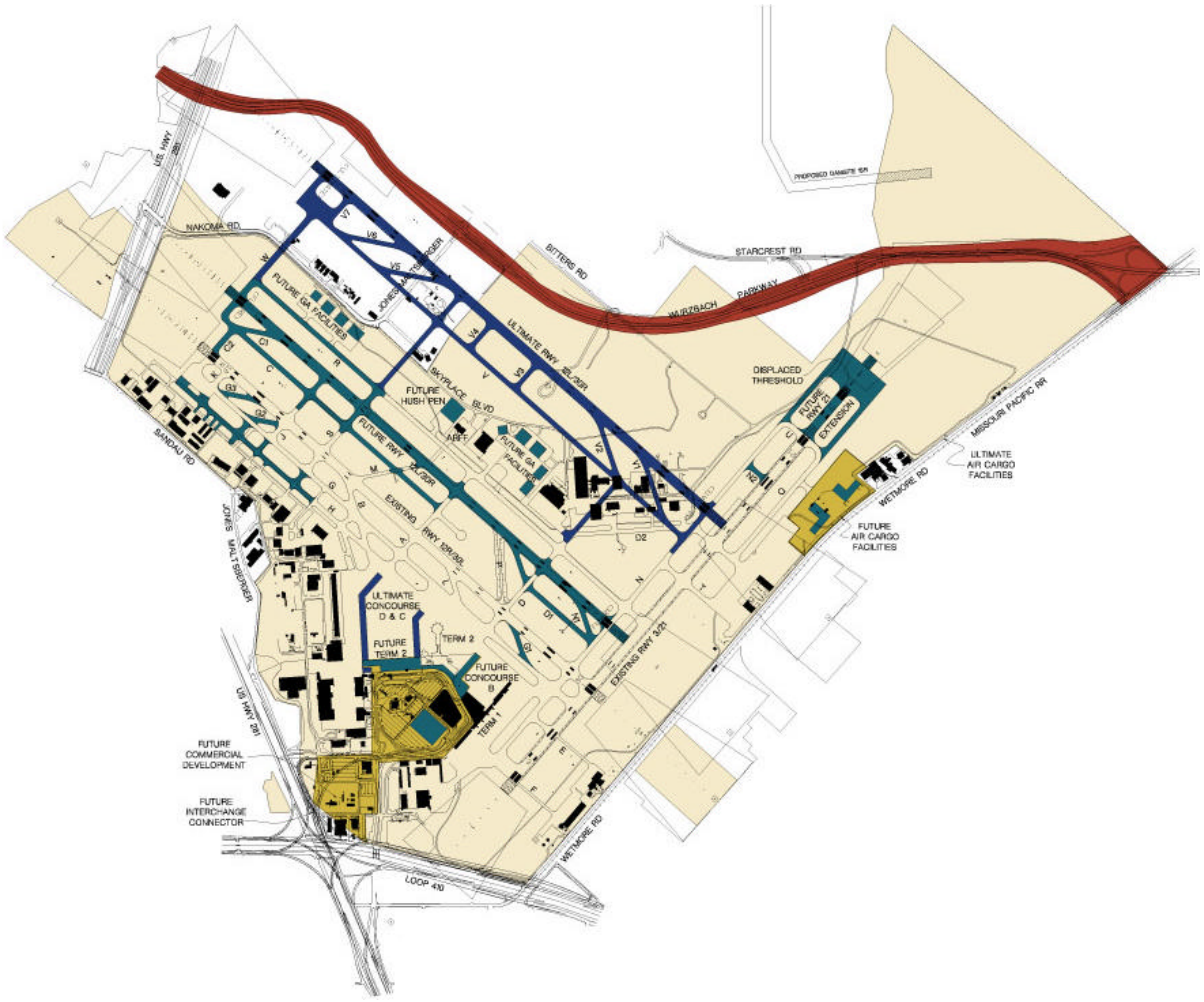
It should be noted that operation and development of the Airport are financed solely through users fees, i.e., tenant rentals, landing fees, passenger charges, parking fees, etc. Bond issues are supported by revenues from Airport operations, not from the City's general funds.

The analysis shows that the Airport has ample resources and growth capacity to meet future demands. Under the hypothetical implementation plan, the cost per enplaned passenger remains competitive with other airports, and rental rates, if equalized over the entire terminal complex, are within acceptable ranges. Therefore, the plan is financially viable, and could be undertaken if demand dictates.

8. What Does this Mean for San Antonio International Airport?

San Antonio International Airport is well positioned to meet the aviation needs of the region over the next 20 years. Through the Airport's ongoing capital improvement programs, day-to-day requirements can be met for at least the next five years. After that time, a modest development program of airfield, terminal and parking improvements should provide the capacity needed over the remainder of the planning horizon and provide the necessary room for growth.

Over the near term, the City of San Antonio's focus should be protecting options for Ultimate Development and continuing to monitor activity. This will prepare the Airport to implement improvements when additional capacity is needed. Beyond 2015, the City may decide that development of a new airport would be more beneficial than ultimate expansion of the existing site. As activity increases and planning thresholds are reached, additional studies should be undertaken to refine the conceptual plans of the Master Plan Study into projects and programs which meet the Airport's development needs.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